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## THE SCHEDULE OF RECITATIONS

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Of all the routine tasks that fall to the lot of the high-school administrator the making of the schedule of recitations is at once one of the most important and the most difficult. Its importance rests upon the fact that the smooth running of the intricate machinery of the school, from the opening morning to the last day of the year, depends largely upon the skill with which the schedule of recitations has been made. Its difficulty results from the many restricting elements that must be reconciled with each other, among which may be mentioned the wide range of studies that may be elected by the pupils, the number of rooms available for recitations and study purposes, the laboratory and shop facilities, the number of teachers and their special fitness for certain classes. Besides these, there are many minor considerations, attention to which is essential to the finest adjustment of the schedule.

The making of the schedule for a small school is no less important than for a large one; nor is it less difficult except in the amount of labor involved in securing the elections and making the assignments of pupils. The difficulty of avoiding conflicts between classes is even greater in the small school in which there are few, if any, duplicate sections in the subjects offered.

As for all other details of administration, the principal is responsible for the schedule. He may be fortunate enough to have an assistant principal or some teacher to whom he may delegate the task with confidence that it will be well done; but in most schools the principal himself must handle the problem. Good organization will reduce to a minimum the actual labor which he will have to perform. The principal who spends his summer vacation agonizing over the schedule for the next year is usually paying the penalty of his own lack of foresight and administrative skill. In the preparation of the data on which the schedule is based pupils and

teachers may render much valuable assistance. The final organization of the schedule, however, is a highly technical task which can be properly done only by an expert who will become more skilful from year to year.

Once made, a good schedule can be continued from year to year with only such changes as experience suggests or new developments demand. A folder should be kept in which during the year are placed memoranda as incidents arise which suggest difficulties to be avoided for the next year. Memory cannot be trusted to recall these in the midst of the intricate process of schedule-making.

It is not unusual for a school to begin the year in absolute confusion: classes are without teachers, sections are overcrowded, large numbers of pupils are unassigned. This condition sometimes continues for days. The result is not merely a loss of time at the opening of the year, but there is throughout the school an impression of ineffectiveness which is not at once overcome when a working schedule is achieved. It is possible to have the schedule in complete operation at the first period of the new year without the necessity of the addition or change of a single class. The effect upon both pupils and teachers of this business-like opening is most important. An investigation of the procedure of seventeen city and suburban schools in the vicinity of Chicago showed that seven schools required not more than two changes in schedule after the opening of the year, while one required no change at all. At the other extreme one school found it necessary to make twenty-nine changes. It should be the aim of the principal when his school assembles for the new semester to have each pupil with his schedule in his hand, each teacher with his class lists on his desk, and all pupils assigned to rooms for recitation and study in sections of suitable size.

To secure this result careful preparation is necessary. This should be begun not later than six weeks before the close of the previous semester. The first step is to secure from each pupil a statement of the studies which he wishes to take during the next semester. The method will vary according to the form of organization employed in the school. Many schools assign groups of pupils to teachers in charge of session rooms; others have advisory groups

for which advisers are responsible. At Grand Rapids<sup>1</sup> these advisers serve as administrative officers, in charge of groups of two hundred pupils each. In some smaller schools, the principal attends to this preliminary himself, feeling that this opportunity for intimate contact and personal guidance justifies the use of the time required. Whoever is assigned to this step must be familiar with the details of the school's offerings and must be able to give sympathetic and intelligent advice to pupils, based on their interests and capacities and their several needs. Printed or mimeographed information should be placed in the hands of the pupils as a basis for their selection of courses for the coming semester. In many schools the approval of parents is secured before the pupil's elections are accepted. Blank forms for this purpose should contain a list of the studies taken at the time and those desired for the next semester. These should include the designations of courses employed in the school so that no additional data will be necessary for the proper class assignment in each subject.

When these blanks have been filled out for all pupils in the school, the information should be tabulated so as to show the number of pupils who have elected each subject. This tabulation may best be made for each group by the teacher or adviser in charge. The totals are then placed in the hands of the committee who are to make the schedule. The original blanks are held by the session-room teacher or adviser, for later revisions will be necessary because of failure of some pupils to pass their courses. If the individual schedules of pupils are to be made out by the advisers, they will also need these blanks for that purpose.

Provision has thus far been made for the pupils in the school during the previous semester. It is equally important to secure definite data regarding those who are to enter the school for the first time. This can best be done through the grade teachers in the elementary schools. The principal or some other representative of the high school should go to each elementary school and talk to the class about to be transferred to the high school. The same detailed information regarding the offerings of the first year should

<sup>1</sup> Alice M. James, "Scientific Program-Making in the Central High School of Grand Rapids, Michigan," *School Review*, XXV (September, 1917), 504-11.

be distributed; blanks should be filled out and handled by the elementary teachers in the same manner as described above.

In some schools, provision is made for a visit to the high school by the elementary-school pupils who are nearing promotion. This visit affords opportunity for giving the necessary information and also for removing some of the forebodings with which, during the summer, these younger pupils may contemplate their new experiences in the high school. In this connection the following statement from Principal R. G. Heitman of the Sioux City, Iowa, High School regarding the observance of "Big Brother and Big Sister Day" is interesting:

Near the close of each semester, all pupils of the senior eighth grade of the Sioux City public schools visit the high school for half a day. This is known as Big Brother and Big Sister Day. As a rule, Seniors act as ushers for these Freshmen to be, although sometimes acquaintances from the same school or neighborhood conduct them. The newcomers are taken to visit the various classes of their guides and shown where and how to get their lunch. During his vacant period, the usher has the privilege of showing the visitors around the building.

The scheme has done much to take away the newness for the entering class. They learn the location of rooms and get a general acquaintance with high-school régime. In many cases, it has also led to a kind of guardianship, for the Senior who has "big brothered" him feels a kindly interest toward him after he enters and helps him through many difficulties. To some extent at least this plan may be responsible for the fact that such a high percentage of those promoted enter the high school.

From the separate totals handed in by session-room teachers or advisers covering the elections of pupils already members of the school and of those to be promoted from the elementary schools, the principal, or preferably the schedule committee, next draws up a tally sheet, showing the number of pupils electing each course. From this tally sheet the numbers of divisions in each course can be determined. At the opening of the next school year there will be found variations from the figures of the tally sheet due to the failure of some pupils to return to school and to the influx of new pupils from sources that could not be definitely determined before the making of the schedule. A fairly accurate prediction, however, may be made regarding these items based on previous experience in a given school, so that there should be need of few or no changes

in the schedule as it is finally made. It is, of course, important that no pupils be allowed to change their elections except for valid reasons.

So far the preliminary work should have been accomplished by a schedule committee, which need not be large, assisted by a considerable number of session-room teachers or advisers. At this point comes the making of the schedule, a highly technical task, which can be best done by one person who is familiar with all the varying factors which enter into the problem. Among the determining factors the following may be mentioned as important:

1. *Number of classrooms available.*—In most schools the number of classrooms is so limited as to require approximately the same number of classes at each period of the day.

2. *Available study-room space.*—Some schools have one or more large study halls which will accommodate the pupils not assigned to recitations. In others, classrooms only are available for this purpose, and many pupils may of necessity be assigned to unoccupied seats in rooms in which classes are reciting. It is important that pupils should not be placed during their study periods in large assembly halls which are not furnished with suitable desks and in which the lighting is not adequate for study.

3. *Number of teachers and their adaptability to the classes to which they are assigned.*—Careful discrimination is necessary in the assignment of teachers in order to secure the best results in instruction. It is sometimes important to exercise this discrimination in the choice of teachers for individual pupils.

4. *Length and number of periods.*—There is a marked tendency to lengthen the recitation period in order to increase the effectiveness of instruction and to provide for supervised study. This is to be preferred to the plan of providing for supervised study in special periods at the end of the school day. In some schools double periods are provided for this purpose in the work of the earlier years. This lengthening of the period is often accompanied by a corresponding increase in the school day; in some cases it results in a reduction in the total number of periods.

5. *Laboratory and shop periods.*—If double laboratory periods are used, as is the case in most schools, they present considerable

difficulty of adjustment. The increasing practice of single laboratory periods, which is based on other considerations than those related to schedule-making, simplifies this troublesome factor.

6. *Classes meeting fewer than five times a week.*—Various subjects, such as music, physical training, and military drill, usually require but one or two periods a week, while some others of the more formal subjects are given less than five periods in the schedule. If these cannot be so arranged as to come at the same period or alternate with laboratory periods, serious difficulties will result in providing for the widely varying study-room requirements on different days.

7. *Subjects with only one section.*—These will be found in considerable number and it will be necessary to employ the utmost care in placing these so that conflicts in pupils' schedules will not occur. This is likely to prove the most baffling single factor in making the schedule, and it sometimes becomes impossible to provide for some of the irregular schedules of individual pupils.

8. *The factor of fatigue.*—While we have very little scientific knowledge regarding fatigue, it is generally assumed that more effective school work can be done at some periods of the day than at others. Some provision may be made for this in the placing of subjects in the schedule. In the making of schedules for individual pupils alternation of study and recitations can usually be arranged. Some schools have provision for placing each subject at a different period each day, thus equalizing any effect of fatigue between the different subjects. The DeWitt Clinton High School, one of the largest high schools in New York City, has this plan, as does also the English High School of Boston,<sup>1</sup> with an enrolment of over 2,000 pupils.

9. *Assembly period.*—In some schools the weekly assembly takes the place of one of the regular periods, rotating through the number of periods in order. An objection to this plan arises from the fact that certain times in the day are better adapted than others to a thoroughly successful assembly. This difficulty may be obviated by holding the assembly at the same hour each day on which it occurs and moving the remaining periods forward or backward to secure the necessary rotation. In some schools the

<sup>1</sup> See the article by John A. Marsh, "Making a High-School Program," *Educational Administration and Supervision*, VI, 202-14.

assembly is held at the same hour each week, the periods of the day being equally shortened to provide the necessary time. In any case, there will be some readjustment with accompanying loss which is justified by the importance of the well-conducted assembly.

With these determining factors in mind and the tally sheet in hand, the schedule-maker is ready for his task. There are in general two methods of making a schedule, the *block* method and the *mosaic* method. The former may be described as the more scientific and therefore more desirable, particularly in a large school; the latter is more commonly used.

The block method consists in arranging all the recitation sections in non-conflicting groups. In practice, it will be found that from five to eight such blocks will be required. These blocks should contain approximately the same number of recitation sections each. The article by Marsh referred to above describes a schedule of five blocks containing from twenty-five to twenty-eight sections each. For another similar method employing seven blocks see the article by Richardson<sup>1</sup> of the Roxburg High School, Boston. One familiar with school administration will readily see that certain subjects will ordinarily present no chance of conflict, e.g., the successive years of foreign-language classes. The definite requirement in many schools that only one foreign language may be begun at the same time gives another principle for block-making. Different sections of the same subject, e.g., English I, will naturally be placed in different blocks, unless, as is now coming to be the practice in some schools, it is desired to place two or more sections of one subject at the same period so that reassessments of pupils may be made on the basis of ability. The placing of the one-section subjects so as to avoid conflicts is a delicate task in making up the blocks.

With the blocks arranged there follows the assignment to rooms and teachers. If the blocks are made up of a uniform number of classes, based on the number of rooms available, the assignment of rooms is not difficult. The same may be said regarding teachers except that it is not always easy to make the most desirable assignments on the basis of the special adaptability of individual teachers

<sup>1</sup> M. W. Richardson, "Making a High-School Program," *School Review*, XVII (September, 1909), 449-66.

to certain classes. For the actual task it is well to make a layout of teachers and rooms on a blackboard or large sheet of paper and fill in the blank spaces from the blocks as planned. It may be advisable for this to be done by the heads of departments. It is, at least, wise to submit to each department head the finished schedule of his department for approval. Experience, however, may cause one to hesitate to offer opportunity for suggestions, for this procedure is sure to be followed by an overwhelming number of requests for changes, most of which are impossible in view of the schedule as a whole.

The mosaic method, as the term implies, consists in attempting to place the various sections in the schedule in such a way as to avoid conflicts and to meet the conditions which determine a working schedule in a given school. It is an agonizing job in which some acquire considerable skill. In such cases schedule-makers develop in a somewhat undefined way the principle that distinguishes the block method. I have heard a principal of seven hundred pupils describe this method by which he placed on a blank diagram of his proposed schedule squares of pasteboard on which the designations of the different sections were written. These squares were of different colors, one for each year. By shifting these about he finally hit upon a working combination. It is worth noting that he said that he spent the entire summer vacation, an average of two hours daily, in working out his schedule and was assisted in the process by his wife.

With the schedule of recitations completed, there remains the final task of making the individual schedules of the pupils. If each step has been accurately taken up to this point, this becomes largely a matter of good organization. The method varies from that usually employed in which these are made out by the session-room teachers or by committees of teachers to that in which the pupils make out their own schedules. The former method is better adapted to large schools and is probably more efficient in any school, although the latter is frequently used in schools of considerable size. In the Central High School,<sup>1</sup> St. Paul, those pupils who pass

<sup>1</sup> A. G. Meier, "Semester Reorganization and Program-Making in the Central High School of St. Paul, Minnesota," *School Review*, XXVI (April, 1918), 249-58.

in all their work are allowed to make their own schedules. It is maintained that this plan secures valuable training in initiative and that it furnishes incentive to good work. About two-thirds of the labor involved in making the schedule in this school is done by pupils who thus get an insight into this intricate problem that is thought to be of considerable educational value. In the Central High School of Grand Rapids, however, the plan of having the pupils make out their own schedules was found after several years' experience to be wasteful and was abandoned with a resulting improvement in efficiency.

In order to secure the necessary revision of elections of pupils who fail in certain courses it is highly desirable that reports of failures be in the hands of the session-room teachers or advisers before the last day of the term in order that revisions may be made in consultation with the pupils. This may seem to present insuperable difficulties, but this is not the case. In the St. Paul school final grades are in the hands of the enrolment teachers on Wednesday morning of the last week and all changes are made on that day. On Thursday and Friday of that week the pupils do not report and teachers are thus free to complete all the details of the schedule for the coming term. If no provision is made for individual consultation regarding revision of schedules, these changes must be made arbitrarily or allowed to go over to the opening of the next term. In the latter case there will result much confusion which it is very desirable to prevent.

The most economical method of making the individual schedules is to place this task in the hands of the advisers of each group. This ordinarily gives to one teacher the making of about thirty schedules, which he can accomplish in a maximum time of two hours. In order to avoid the difficulty, which might easily result, of having some sections overcrowded, as these teachers would be working independently, the pupils should be distributed equally among the different sections in each subject in which there is more than one section. When they have completed the schedules of their groups, tally sheets are made showing the number of pupils assigned to each subject and section, and these with the completed schedules are turned over to the schedule committee. A final tally

sheet, made up of these separate tally sheets, shows the total number of pupils assigned to each section on the schedule.

Of course, there will be found some pupils whose schedules present peculiar and sometimes insuperable difficulties. These will have to be assigned to the principal or to a designated assistant. In some cases it will be necessary to change the elections of the pupils; in others it may appear that groups of subjects absolutely essential to the pupils present conflicts. As a last resort it may be necessary to attempt changes of the entire schedule. At this point such changes are extremely difficult, their necessity usually being due to some oversight at an earlier point in the layout of the schedule. If the situation involves any considerable number of pupils, the easiest way out of the dilemma is usually to schedule an additional section.

In some well-organized schools, the making of individual schedules is accomplished by committees composed of one representative from each department and in addition a reader and a checker. With a layout of the entire schedule on a blackboard or chart, the reader from the individual election cards reads each subject, the teacher from the appropriate department makes the assignment to a given section, which is recorded by the reader on the pupil's card and is checked on the chart by the checker. As the various sections are filled, they are checked off on the chart as closed. This method is described in detail in the article on schedule-making in the Grand Rapids school referred to above.

A very interesting device<sup>1</sup> for making individual schedules is employed in the DeWitt Clinton High School in New York, consisting of a series of thirty non-conflicting blocks so arranged that each subject falls at a different period on each day of the week. A sample block is as follows: Monday 1, Wednesday 4, Friday 5, Tuesday 2, Thursday 3, the numbers representing the period at which the subject falls on the day designated. With the entire schedule conforming to this arrangement, it is a very simple matter to make the schedule of any pupil. In the Stuyvesant High School in New York a most ingenious mechanical device is used consisting of a strip of wood with revolving spindles by

<sup>1</sup> Henry B. Penhallow, "A System of Program-Making" (1912).

means of which a committee of teachers, with the assistance of a group of boys, make out, in a surprisingly short time, the schedules of over five thousand pupils.

If pupils make out their own schedules, it is necessary to devise some plan by which these may be checked up as they are made, and a tally sheet kept in order to prevent great inequality in the size of sections. In the St. Paul High School in which pupils who pass in all their studies are allowed this privilege, the schedules are tallied in the order Seniors, Juniors, Sophomores, Freshmen, because in cases of conflicts and filled classes schedules of the lower classes are more easily adjusted. However, as a rule, classes fill up evenly. This is not possible where all pupils make their own schedules unless some accurate method of checking is employed. In the University High School at Chicago with four hundred pupils, this method was employed for a number of years under the author's direction. The system was so organized that the results were checked on the spot and no overcrowded sections resulted. The pupils' elections were made and the schedule of recitations completed before the end of the previous year. Just before the regular opening of the year the pupils of each class met in one room for a period of two hours. On entering the room each was given a printed schedule of recitations and a card on which was written his approved list of subjects for the year. He then proceeded to make out his schedule, choosing such hours and teachers as he wished. This he presented to a teacher, one each for boys and girls, who acted as inspector and signed his initials in approval if the schedule conformed to the election blank. His approved schedule he then presented to a clerk. This clerk had in open filing cases sets of cards properly designated for each subject and section corresponding in number to the number of pupils to be assigned to each section. This clerk took from these groups of cards one for each item on the pupil's schedule. These cards were then attached with a clip to the pupil's schedule card and were passed to another clerk who at once wrote the pupil's name on each class card and re-assorted them in filing cases under their appropriate headings. The dummy class lists from the files of the first clerk thus became the actual class lists in the files of

the second clerk. Each pupil retained a duplicate copy of his schedule. As soon as the class cards for any section in the dummy files were exhausted this section was known to be full and a bulletin to this effect was placed upon the board. In fact, such a bulletin was posted when there were five places still remaining in order to provide for difficult adjustments which were likely to arise. In case a pupil presented a schedule involving some class already filled, he was sent back to try a different combination. As soon as the registration of a given group was thus completed, the lists of pupils in each section could be at once made from the cards on file. This method has the advantage that only those pupils who are in actual attendance are included in the files and the corresponding class lists, and each pupil has in his own hands his schedule for the term before the opening day. It requires more time and is more difficult to administer than the usual method of arbitrary assignments. It should be stated that this plan has been discontinued in the University High School.

In the various blanks employed in schedule-making it is important that some system of designations be employed showing in concise form all the items of information necessary to the process. It is customary to designate by Roman numerals the courses in a given subject, e.g., Latin I, Latin III, indicating the first and third year in that language. The year in which the pupils are classified may be indicated by Arabic numerals; if there are two or more sections in the same subject, they may be designated by letters, e.g., French I<sub>2b</sub> would indicate the first year in French taken by second-year pupils of section b. The teacher's name may be indicated by an initial letter. In the English High School, Boston, the designation P<sub>31</sub> Mi means Physics, a third-year subject, reciting in block 1, taught by Mr. Miller. In any given school, the designation should be simple, uniform, and complete.

It is desirable that the finished schedule be printed or otherwise presented in the most pleasing form possible, making easily available the information necessary to determine at any hour of the day just what work is in progress in each department of the school.

The most important points in schedule-making may be summarized as follows:

1. Several weeks before the close of the semester all pupils who are to continue in the school and those who are to be promoted from the elementary school should, under careful guidance, make their elections of studies for the next semester. Their elections, once made, should not be changed except for valid cause.
2. A detailed tabulation should be made of the number of pupils who are to be enrolled for each subject for the next semester.
3. The schedule should be made to conform to this tabulation and to meet such conditioning factors as number and capacity of class and study-rooms, the number and adaptability of teachers, number and length of periods, laboratory and shop periods, subjects meeting an irregular number of times a week, single-section subjects, pupil fatigue, and the general assembly.
4. The *block* method of schedule-making is preferable to the *mosaic* method.
5. The individual pupil's schedule should be made out before the opening day of the new semester.
6. The principal's aim should be to have each pupil with his schedule in his hand, each teacher with his class lists on his desk, and all assigned to rooms for recitation and study in sections of suitable size at the opening session of the semester.
7. Good administration will make all this possible and will relieve the principal of undue labor by the enlistment of the assistance of the teachers and pupils of his school.